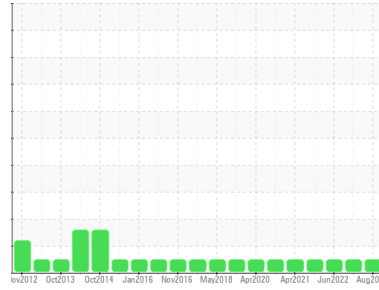




# OIL ANALYSIS REPORT

Sample Rating Trend



**NORMAL**



Area  
**RIPPEY [200005325]**  
 Machine Id  
**82213 SITE 3**

Component  
**Wind Turbine Gearbox**  
 Fluid  
**CASTROL OPTIGEAR SYNTHETIC X 320 (340 LTR)**

## DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

### Wear

All component wear rates are normal.

### Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

### Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

## SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		<b>NX05999830</b>	NX05913479	NX05672242
Sample Date	Client Info		<b>09 Aug 2023</b>	23 Jan 2023	22 Jun 2022
Machine Age	hrs	Client Info	<b>0</b>	0	0
Oil Age	hrs	Client Info	<b>0</b>	0	0
Oil Changed	Client Info		<b>N/A</b>	N/A	N/A
Sample Status			<b>NORMAL</b>	NORMAL	NORMAL

## WEAR METALS

	method	limit/base	current	history1	history2	
PQ	ASTM D8184	>80	<b>12</b>	15	3	
Iron	ppm	ASTM D5185m	>150	<b>1</b>	3	2
Chromium	ppm	ASTM D5185m	>5	<b>0</b>	0	0
Nickel	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Silver	ppm	ASTM D5185m		<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>10	<b>4</b>	<1	0
Lead	ppm	ASTM D5185m	>20	<b>0</b>	0	0
Copper	ppm	ASTM D5185m	>50	<b>&lt;1</b>	2	2
Tin	ppm	ASTM D5185m	>10	<b>0</b>	0	0
Antimony	ppm	ASTM D5185m	>5	<b>---</b>	---	---
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	0
Cadmium	ppm	ASTM D5185m		<b>0</b>	0	0

## ADDITIVES

	method	limit/base	current	history1	history2	
Boron	ppm	ASTM D5185m		<b>41</b>	0	0
Barium	ppm	ASTM D5185m		<b>0</b>	0	5
Molybdenum	ppm	ASTM D5185m	1150	<b>767</b>	810	748
Manganese	ppm	ASTM D5185m		<b>0</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>6</b>	3	5
Calcium	ppm	ASTM D5185m	2000	<b>1459</b>	1636	1373
Phosphorus	ppm	ASTM D5185m	400	<b>341</b>	372	306
Zinc	ppm	ASTM D5185m	0	<b>0</b>	0	<1
Sulfur	ppm	ASTM D5185m	1850	<b>1683</b>	2146	1861

## CONTAMINANTS

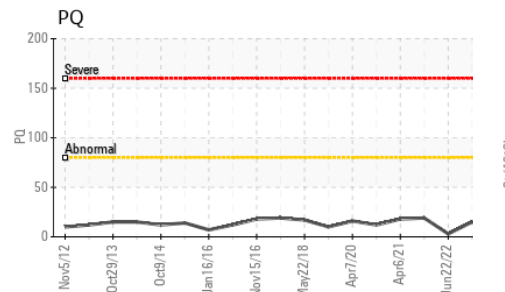
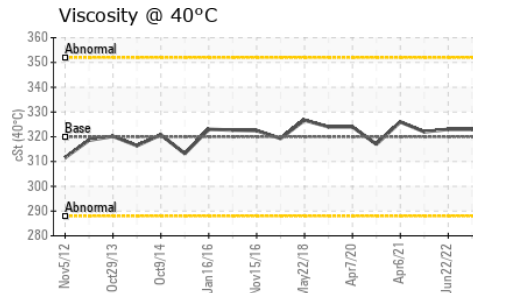
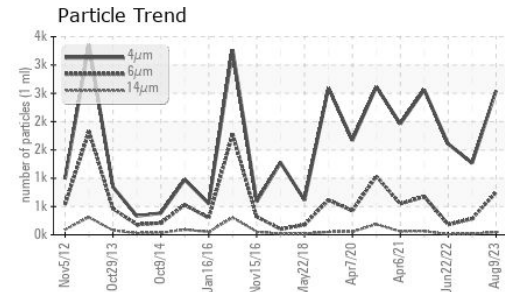
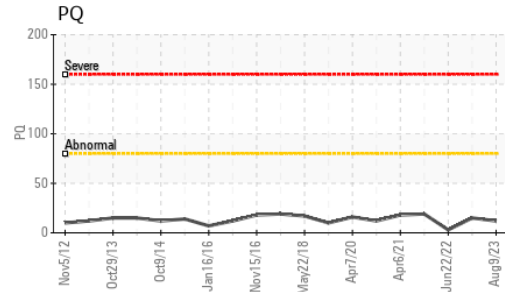
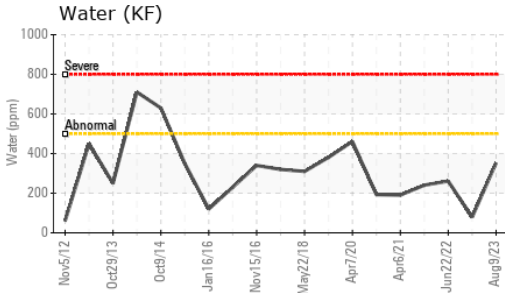
	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185m	>50	<b>12</b>	8	8
Sodium	ppm	ASTM D5185m	>20	<b>7</b>	8	4
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	0	1
Water	%	ASTM D6304	>0.05	<b>0.035</b>	0.007	0.026
ppm Water	ppm	ASTM D6304	>500	<b>352.7</b>	79.1	261.0

## FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647		<b>2545</b>	1267	1606
Particles >6µm	ASTM D7647	>2500	<b>751</b>	284	180
Particles >14µm	ASTM D7647	>320	<b>48</b>	19	9
Particles >21µm	ASTM D7647	>80	<b>9</b>	7	2
Particles >38µm	ASTM D7647	>20	<b>1</b>	1	0
Particles >71µm	ASTM D7647	>4	<b>1</b>	0	0
Oil Cleanliness	ISO 4406 (c)	>--/18/15	<b>19/17/13</b>	17/15/11	18/15/10



# OIL ANALYSIS REPORT



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.6	<b>0.67</b>	0.42	0.58

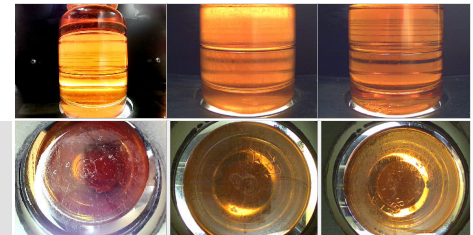
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Precipitate	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	<b>NEG</b>	NEG	NEG
Free Water	scalar	*Visual		<b>NEG</b>	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	320	<b>323</b>	323	323

SAMPLE IMAGES		method	limit/base	current	history1	history2
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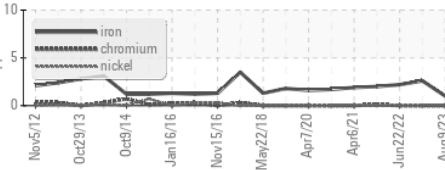
Color

Bottom

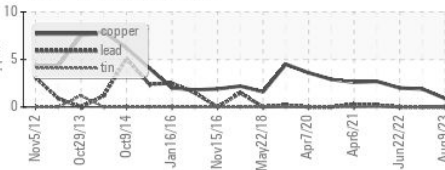


## GRAPHS

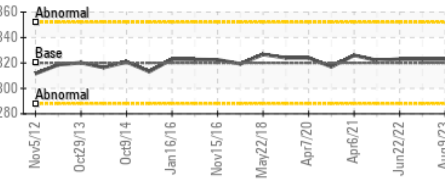
Ferrous Alloys



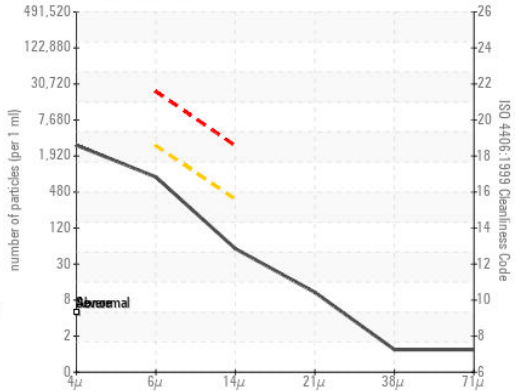
Non-ferrous Metals



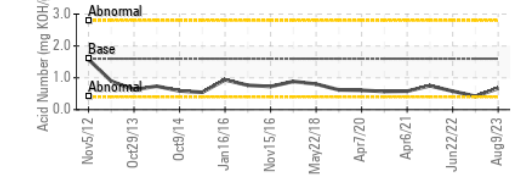
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : NX05999830 **Received** : 06 Nov 2023  
**Lab Number** : 05999830 **Diagnosed** : 08 Nov 2023  
**Unique Number** : 10728190 **Diagnostician** : Jonathan Hester

**NORDEX USA - Chicago**  
 300 SOUTH WACKER DRIVE, SUITE 1500  
 CHICAGO, IL  
 US 60606  
 Contact: DEVIN LINEHAN  
 DLinehan@nordex-online.com  
 T: (312)386-4124  
 F: (312)386-7102

**Test Package** : IND 2 ( Additional Tests: KF, PQ, PrtCount )

To discuss this sample report, contact Customer Service at 1-800-237-1369.

\* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)